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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,267	11/26/2003	Leo Wenstrup	1-16405	1251

7590

08/08/2005

Attention: Mark A. Hixon, Esq.
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EXAMINER

LE, DAVID D

ART UNIT

PAPER NUMBER

3681

DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/724,267

Applicant(s)

WENSTRUP ET AL.

Examiner

David D. Le

Art Unit

3681

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 05/20/05.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. This is the second Office action on the merits of Application No. 10/724,267, filed 26 November 2003. Claims 1-3 are pending.

Documents

2. The following documents have been received and filed as part of the patent application:
- Declaration and Power of Attorney, received on 05/06/04
 - Information Disclosure Statement, received on 03/18/04
 - Information Disclosure Statement, received on 05/20/05
 - Replacement Drawings, received on 05/20/05

Drawings

3. The drawings were received on 20 May 2005. These drawings are approved.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 3681

5. Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by U. S. Patent No. 6,705,965 to Sullivan.

Claims 1-3:

Sullivan (i.e., Figs. 1 and 3; column 2, line 30 – column 5, line 40) discloses a differential carrier assembly for a drive axle comprising:

- A differential carrier (i.e., Fig. 3, being the differential carrier housing 106 and a portion of the second bearing cage 120, which contacts the differential carrier housing 106) having a set of threads (i.e., Fig. 3, being the set of threads that is shown at the vicinity of reference number 124) on an interior surface;
- An input bearing adjuster (i.e., Fig. 3, element 116) having a complementary set of threads on an exterior surface;
- An input bearing system of a differential (i.e., Fig. 3, element 152) comprising an outer race in contact with said input bearing adjuster (i.e., Fig. 3, element 116) and an inner race in contact with an input shaft (i.e., Fig. 3, element 104) and an input bearing (i.e., Fig. 3, element 112);
- A locking mechanism (i.e., Fig. 3, being the combination of elements 114 and 128 or column 4, lines 15-17) to selectively secure said input bearing adjuster to said differential carrier;
- Wherein said threads of said bearing adjuster are engaged with said threads of said differential carrier to adjust the preload or the endplay of said input bearing (column 3, lines 55-60);
- Wherein said locking mechanism comprises a screw (i.e., Fig. 3, element 114); and

- Wherein no endcap is attached for the differential carrier assembly (Fig. 3 does not appear to show an endcap).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sullivan in view of U. S. Patent No. 4,273,391 to Asberg.**

Claims 1-3:

Sullivan discloses the claimed limitations as set forth above. Regarding claims 1-3, *Sullivan* discloses a differential carrier housing 106 that includes a portion of the second bearing cage 120 as part of the differential carrier housing 106 (see Fig. 3).

Asberg (Fig. 1; column 1, line 9 – column 3, line 5), on the other hand, teaches a device for axial adjustment of a rotatable body comprising:

- A differential carrier (3) having a set of threads on an interior surface;
- An input bearing adjuster (4) having a complementary set of threads on an exterior surface;
- An input bearing system comprising an outer race (being the portion of element 4 that contacts the roller bearings) in contact with said input bearing adjuster and an inner race in contact with an input shaft and an input bearing (see Fig. 1);

- A locking mechanism (10) to selectively secure said input bearing adjuster to said differential carrier assembly;
- Wherein said threads of said bearing adjuster are engaged with said threads of said differential carrier assembly to adjust the preload and/or the endplay of said input bearing; and
- Wherein said locking mechanism comprises a screw (i.e., column 2, lines 44-48);
- Wherein no endcap is necessary for the differential carrier assembly (Fig. 1 does not appear to show an endcap).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sullivan such that the bearing cage 120 and the differential carrier housing 106 are integrally formed as a single unit, in view of Asberg in order to provide a simplified construction of the differential carrier assembly.

Response to Arguments

8. *With respect to U. S. Patent No. 4,273,391 to Asberg (Asberg'391):*

Applicant's arguments, see page 4 of the amendment, filed on 20 May 2005, with respect to 1-3, being rejected under 35 USC 102(b) as being anticipated by Asberg'391, have been fully considered and are persuasive. Therefore, the 35 USC 102(b) rejection of claims 1-3 has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made as set forth in paragraph 7 above.

9. With respect to U. S. Patent No. 6,705,965 to Sullivan (Sullivan'965):

First, applicant argues that Sullivan'965 does not teach or suggest a differential carrier having a set of threads on an internal surface, as required by amended claim 1. Instead, Sullivan'965 teaches a first cage member threaded to a second cage member. The cage members are bolted to the carrier housing.

Examiner respectfully disagrees for the reason that the claimed "differential carrier", as presently recited in the amended claim 1, is defined in the present specification (page 3) as differential carrier assembly 12 or the carrier 12. This differential carrier assembly 12 or the carrier 12 is shown in Fig. 2 of the present specification as a housing element for the disclosed interaxle differential assembly.

Second, applicant argues that Sullivan'965 does not teach the claimed locking mechanism that selectively secures the claimed input bearing adjuster to the claimed differential carrier.

Examiner respectfully disagrees because the locking mechanism of Sullivan'965, as set forth in paragraph 5 above, is just as selectively securing the bearing adjuster to the differential carrier as the present claimed locking mechanism.

Accordingly, as set forth above, the Sullivan'965 meets the claimed limitations.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Le whose telephone number is 571-272-7092. The examiner can normally be reached on Mon-Fri (0700-1530).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A. Marmor can be reached on 571-272-7095. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


ddl


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ART UNIT 3681